Original Article

Assessing the Validity of Christian Religious Studies Multiple-Choice Items of Enugu State Basic Education Certificate Examination

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ABSTRACT

This study is to determine the validity of using multiple choice questions for the Basic Christian Religious Certificate Examination in Enugu State. One research question and one hypothesis were formulated for the study. Descriptive survey research design was adopted for the study. The population for the study consisted of Upper Basic 9 CRS students in all 291 secondary schools in Enugu State, who registered for BECE in 2015 and 2018. Three secondary schools were sampled from the three Local Government Areas that made up Enugu Education Zone. BECE question papers were administered to 300 students from the three schools drawn from the Enugu Education Zone. BECE question paper was the instrument used for data collection. The instrument was not face validated because it was a standardized test. Content validation was done using the Chi-square test of the Goodness-of-fit at an alpha level of 0.05. The major findings of the study showed that the BECE CRS multiple-choice questions of Enugu State Ministry of Education had low content validity. It was recommended that Enugu State Ministry of Education through the Examination Development Centre (EDC) should generate items in accordance with the specifications of the test blueprint.

Keywords: Validity, content validity, table of specification or test blueprint, CRS multiple-choice test items and Basic Education Certificate Examination (BECE)

Introduction

The Basic Education Certificate Examination (BECE) is a mandatory examination for students in the ninth year of their basic education class and third year of the Junior Secondary School. It is the examination that aims at qualifying students for admission into senior secondary and vocational schools. BECE consists of multiple-choice, essay questions, and Continuous (Internal) Assessment marks provided by the schools.

BECE is conducted by the Examination Development Centres (EDC) of every State Ministry of Education and the National Examination Council (NECO) for unity schools and allied institutions. State BECE which is the researcher's area of interest conducts the BECE for all public state secondary schools and approved private secondary schools in Nigeria. Enugu State Ministry of Education, like any other State Ministry of Education through the examination development centre is responsible for the development and construction of tests with regards to BECE.

Below is the summary of BECE results from 2010 – 2019:

Table 1

Summary of BECE Results (2010 – 2019)

Year	Total No. REG	No. SAT	No. ABS	% ABS	NO. PASSED	% PASSED	No. FAILED	% FAILED
2010	35680	35355	325	0.910	30680	86.77	4675	13.22
2011	34559	34339	220	0.636	33120	96.45	1219	3.54
2012	29198	29009	189	0.647	24349	83.93	4660	16.06
2013	38700	38000	700	1.80	34400	90.52	3600	9.47
2014	32000	31600	400	1.25	3112	98.45	488	1.54
2015	21564	20907	657	3.046	15654	78.87	5253	25.12
2016	23598	22914	654	2.77	19654	85.77	3260	14.22
2017	36870	34103	325	0.95	26884	78.8	7219	21.1
2018	33680	33295	385	1.15	28620	85.9	4675	14.0
2019	25980	25326	654	2.58	22893	90.3	2433	9.6

Summary of BECE CRS Results from 2010 – 2019

Extracted from the Basic Education Certificate Examination Performance Sheets of Enugu State Ministry of Education, Examination Development Centre, Enugu.

A glanced through the Enugu State BECE CRS results summary from 2010 to 2019 showed that the percentage of passes were on the high side. In 2010, the number of students that passed were 30680 (86.77%) out of 35355 that sat for the examination. In 2011, 33120 (96.45%) out of 34339 passed. In 2012, 24349 (83.93%) out of 29009 passed the examination. In 2013, 34400 (90.52) out of 38000 passed the examination. In 2014, 31112 (98.45%) out of 31600 passed. In 2014, 15654 (74.87%) out of 20907 passed the examination. In 2016, 19654 (85.77%) out of 22914 passed the examination (Enugu State Ministry of Education BECE Course Performance Sheet, 2010, 2011, 2012, 2013, 2014, 2015, 2016). It means that the mean percentage pass within the years under study is 88.11%. Nevertheless, a cursory look at students' achievement at Senior Secondary School Examination (SSCE) depicted low performance in Christian Religious Studies (WAEC Chief Examiner's Report 2018 and 2019). Considering the discrepancy noted above, the validity of the instruments for the BECE CRS may be in doubt. Hence, the need for the assessment of its content using the table of specification or test blueprint.

Validity is concerned with soundness and effectiveness of the measuring instrument. In a standard test, for instance, validity would raise such questions as: what does the test measure? Does it in fact measure what it is supposed to measure? How well? How comprehensively, how accurately does it measure it? Therefore, a test is valid if it measures what it claims to measure. Validity can also be thought of as utility (Otuka, 2004). Validity is a subjective judgment made based on experience and empirical indicators. It asks "is the test measuring what you think it's measuring? (Anigbo, 2014). The question often raised is whether the test measures the characteristics of the testee it is supposed to measure. It means that if a test is designed to measure written expression, it should not measure reading or spoken language. A test that is valid for senior secondary class may not be valid for junior secondary school class in the same subject (Oji, 2003).

For an instrument to measure what it is supposed to measure, validation of instrument is necessary. According to Idoko (2011), validation of an instrument is a very crucial exercise in research, and it should be carried out by the researcher or developer of the instrument before it can be used to collect data. There are different forms of validity and these include: content validity, construct validity, criterion validity, concurrent validity, predictive validity, face validity, internal validity, and external

validity. This research work is interested only in content validity.

Content validity is the extent to which items reflect and adequately convers both the content and objectives of the lessons or courses on what it is based. Content validity is essential for achievement tests and it is generally useful for any other test items. Numerical expressions are not used for content validity, but it is rather determined by thorough inspection of the items. What is needed is a 'Table of Specification' or 'Test Blueprint' in determining the accuracy of the content validity of test instruments (Ebuoh, 2004). A Table of Specification is a plan for the preparation of test items. It stipulates how many items that will be included on each topic or course unit, and the type of questions that should be asked in accordance to the domains of educational objectives (Alio, 2008).

Christian Religious Studies is one of the core subjects in both primary and junior secondary schools in Christian dominated states in Nigeria like Enugu State. It is one of the subjects through which students are assessed in BECE. CRS at the upper basic school level is meant to prepare learners for useful living through inculcation of Christian attitudes and values, and to prepare learners for higher education. It should be noted that every subject taught in basic and senior secondary school has its unique value and importance to the whole education process. Christian Religious Studies is a subject that helps to streamline the thought, character, moral and aspiration of the students. It also offers hope for the future, integrate, discipline, harmonious and progressive society (Ntama, Owulu & Monity, 2016). The researcher is yet to come across researches carried out on the assessment of the validity of BECE Christian Religious Studies (CRS) multiple choice questions. That is why, this study is needful in order to ascertain the level of content validity of State BECE CRS test items.

Statement of the Problem

Recognizing the place of CRS in general attitude and character moulding of students, it is important to know if the instrument used for test at BECE measured what it is supposed to measure. It is also important to note that research reports depicted that students' achievement in the subject is on the high side. In the course of this investigation, the researcher through a glance of Enugu State BECE CRS results summary from 2010 to 2019 discovered that the percentages of passes were on the high side. But a look at the WAEC Chief Examiner's Report of 2018 and 2019 showed that students' achievement in CRS is low. It leaves one to wonder what the validity of the BECE test instruments could be.

If the higher achievement at BECE level is real, it should translate to higher achievement at WAEC level. Hence, one is left with option of doubt if the instrument at BECE level is truly valid to have produced higher achievers. The problem is therefore, to find out if it is possible that the instrument at BECE level is truly valid to have produced high percentages of passes of candidates who took part in the examination.

Purpose of the Study

The purpose of the study is to assess the validity of CRS multiple-choice test items administered by Enugu State Ministry of Education for Basic Education Certificate Examination (BECE). Specifically, the study was designed to determine: The content validity of Enugu State Ministry of Education BECE CRS multiple-choice test items.

Research Question

One research question guided the study: What is the level of contents coverage of the Enugu State BECE Christian Religious multiple-choice test items as specified by the test blueprint?

Hypotheses

The null hypothesis below was formulated to guide the study at 0.05 significant level:

H_{O1}: The items of the Enugu State BECE Christin Religious multiple-choice items do not deviate significantly from the specifications of the test blueprint.

Method

The research design for the study was a descriptive survey research design aimed at assessing the validity of CRS multiple-choice test items administered by Enugu State Ministry of Education for Basic Education Certificate Examination (BECE). Descriptive research design, according to Idoko (2011) is concerned with the collection, collation,

analysis, and interpretation of data the way they are or exist from relevant sources with appropriate tools and methods and afterward, using the result of the interpretation to describe existing situations, events, characters, and so on.

The area of study was Enugu State. The State has six education zones namely: Agbani, Awgu, Enugu, Nsukka, Obollo-Afor and Udi education zones. There are many secondary schools in each of these education zones. The study was delimited to Enugu education zone which is made up of three Local Government Areas: Enugu East, Enugu North and Isi Uzo. In these three Local Government Areas, there are 31 secondary schools managed by Enugu State Ministry of Education.

The population of the study consisted of 55,244 Upper Basic 9 CRS students in all the 291 secondary schools in Enugu State. These were the students who registered for BECE in 2015 and 2018.

The sample of the study consisted of BECE CRS multiple-choice items for 2 years. Simple Random sampling technique was used to draw the sample size out of the BECE CRS question papers from the year of establishment of the examination body. To obtain the years to be used, balloting by replacement was used to select the 2 years for the study. The schools were stratified into schools that sat for BECE. On the other hand, 3 schools were obtained through simple random sampling from the 31 State BECE schools from which 100 students were randomly selected from each of the schools. This yielded 300 students for the state BECE school population.

The instrument for data collection was BECE Christian Religious Studies multiple-choice question papers of 2015 and 2018. BECE is a standardized test of the Enugu State Ministry of Education and it had undergone the standardization process before being administered to the examinees. Therefore, there was no need to face validate it again or to determine its initial content validity before commencing study. Content validity was done by this study to determine whether the tests measured what they supposed to measure. The content validation was done using test blueprint.

The question paper contained 60 multiple-choice objective items with four options lettered A, B, C, and D for each item. There was one correct answer and three distracters. The researcher administered the BECE CRS question paper to the sample of 300 students with the help of two research assistants. The research assistants were assigned to two Local Government Areas while the researcher handled the third one. The answer scripts were scored. One mark was awarded for each correct answer and zero (0) for each wrong answer. The Research Question was answered using a Table of goodness-of-fit, and Hypothesis was tested using the Chi-Square test of the goodness of fit at 95% confidence level (alpha 0.05).

Table 2

The test blueprint below was used for the weighting of the multiple-choice items

Objectives Content	Knowledge Recognizes terms and vocabularies 30%	Comprehension Identifies facts, principles and generalization 30%	Analysis Break idea into parts 10%	Synthesis Put elements together to form new matter 10%	Application Applied knowledge in new situation 10%	Evaluation Judge the worth of information 10%	Number of items
God and his creation 15%	3	3	1	1	1	0	9
God's Call 15%	3	3	1	1	1	1	9
Keeping God in our Relationship 10%	1	1	1	1	0	1	6
The early life of Jesus 10%	2	2	0	0	1	1	6

The Ministry of Jesus 15%	2	2	1	1	1	2	9
The Sacrifice of Jesus 12%	2	2	1	1	1	0	7
The Beginning of the Church 10%	2	2	1	1	0	0	6
The Ministry of the Apostles 10%	2	2	0	0	1	1	6
The Christian Church Today 4%	1	1	0	0	0		2
Number of items	18	18	6	6	6	6	60

This test blueprint shows the content area and the percentage of the total items that the BECE test items or multiple-choice questions should cover. The test blueprint is based on the course syllabi of the Upper Basics.

Result

Level of contents coverage of the Enugu State BECE CRS multiple-choice test items as specified by the test blueprint?

Table 3

Goodness-of-fit Table for the items of the Enugu State BECE CRS multiple-choice test items

Content	Knowledge (30%)	Comprehension (30%)	Application (10%)	Analysis (10%)	Synthesis (10%)	Evaluation (10%)	Total
God and His creation (15%)	3 (1)	3 (2)	1 (1)	1 (0)	1 (0)	0 (1)	**9 (5)**
Gods call (15%)	3(1)	3(2)	1 (0)	1(1)	1 (1)	1 (1)	**9 (6)**
Keeping God in our relationship (10%)	1 (1)	1 (1)	1 (1)	1 (0)	0 (1)	1 (0)	**6 (4)**
The early life of Jesus (10%)	2 (4)	2 (3)	0 (1)	0 (0)	1 (0)	1 (0)	**6 (8)**
The ministry of Jesus (15%)	2 (2)	2 (3)	1(3)	1(2)	1(1)	2 (0)	**9 (11)**
The Sacrifice of Jesus (12%)	2 (3)	2 (0)	1(0)	1 (0)	1 (1)	0 (0)	**7 (4)**
The beginning of the church (10%)	2 (0)	2 (1)	1 (3)	1 (0)	0 (1)	0 (0)	**6 (5)**
The Ministry of the Apostles (10%)	2 (2)	2 (4)	0 (0)	0 (2)	1 (1)	1 (0)	**6 (9)**
The Christian church today (4%)	1 (0)	1 (1)	0 (1)	0 (1)	0 (4)	0 (1)	**2 (8)**
Total	**18 (14)**	**18 (17)**	**6 (10)**	**6 (6)**	**7 (10)**	**5 (3)**	**60**

The Goodness-of-fit Table shows the observed and expected frequencies of the BECE test items across the content and objectives. The observed frequencies are the figures in bracket and the figures not bracketed are the actual distribution of the expected test items. To achieve the correspondence of the test items with the specifications of the test blueprint, a goodness-of-fit table was used.

Result presented on table 1 show the content coverage of the Enugu State BECE CRS multiple-choice items. As shown on Table1 there is very low correspondence with the specifications of the test blueprint. In most of the domains for almost all the contents there was no perfect correspondence with the specifications of the test blueprint. The row and

column totals also reveal no correspondence of observed frequencies with the expected frequencies.

Ho: The items of the Enugu State BECE CRS multiple-choice items did not deviate significantly from the specifications of the test blueprint.

To certify the content validity of the test items, the frequencies of the distribution of the items (observed and expected frequencies) were subjected to Chi-Square test of the Goodness-of-fit at an alpha level of 0.05. Summary of the test is presented on Table 4

Table 4

Test of the goodness-of-fit of BECE CRS multiple-choice items of the Enugu State Ministry of Education based on their test blueprint

Content	Knowledge (30%)	Comprehension (30%)	Application (10%)	Analysis (10%)	Synthesis (10%)	Evaluation (10%)	X^2cal	Alpha	X^2crit	Decision
God and His creation (15%)	3 (1)	3 (2)	1 (1)	1 (0)	1 (0)	0 (1)				
Gods call (15%)	3(1)	3(2)	1 (0)	1(1)	1 (1)	1 (1)				
Keeping God in our relationship (10%)	1 (1)	1 (1)	1 (1)	1 (0)	0 (1)	1 (0)				
The early life of Jesus (10%)	2 (4)	2 (3)	0 (1)	0 (0)	1 (0)	1 (0)	35.26	0.05	18.307	Reject null hypothesis
The ministry of Jesus (15%)	2 (2)	2 (3)	1(3)	1(2)	1(1)	2 (0)				
The Sacrifice of Jesus (12%)	2 (3)	2 (0)	1(0)	1 (0)	1 (1)	0 (0)				
The beginning of the church (10%)	2 (0)	2 (1)	1 (3)	1 (0)	0 (1)	0 (0)				
The Ministry of the Apostles (10%)	2 (2)	2 (4)	0 (0)	0 (2)	1 (1)	1 (0)				
The Christian church today (4%)	1 (0)	1 (1)	0 (1)	0 (1)	0 (4)	0 (1)				

Table 4 shows that the set of observed frequencies did not fit closely to the set of expected frequencies. The calculated value (35.26) is greater than the critical value (18.307). Based on the decision rule, the researcher rejected the null hypothesis and concludes that the items of the Enugu State BECE multiple-choice items deviated significantly from the specifications of the test blueprint and has low content validity.

Discussion

BECE CRS Multiple-choice Items Administered by the Enugu State Ministry of Education did not reflect the Test Blueprint

The evidence from the study shows that the CRS BECE multiple-choice items did not reflect to a great extent with the test blueprint. It shows that the examination had low content validity and that the items were not properly generated. For the content validity of a test, the findings disagreed with Ebuoh

(2004) who opined that content validity is essential for any achievement test and test blueprint is necessary in determining the accuracy of the content of test items. This finding was confirmed by the result of hypothesis, which showed that the items of the Enugu State BECE multiple-choice items deviated significantly from the specifications of the test blueprint.

Conclusion and Recommendations

The study centered on assessing the validity of State Basic Education Certificate Examination Christian Religious Studies multiple-choice questions in Enugu State. One research question and one hypothesis were formulated for the study. Descriptive survey research design was adopted for the study. The population for the study consisted of Upper Basic 9 CRS students in all 291 secondary schools in Enugu State, who registered for

BECE in 2015 and 2018. Three secondary schools were sampled from the three Local Government Areas that made up Enugu Education Zone. BECE question papers were administered to 300 students from the three schools drawn from the Enugu Education Zone. BECE question paper was the instrument used for data collection.

Goodness of-fit table was used to answer the research question. Content validity was subjected to analysis using Chi-Square test of the Goodness-of-fit at an alpha level of 0.05. The major finding of the study indicated a low content validity of BECE multiple-choice items.

Based on the findings, the researchers made the following recommendations:

1. Enugu State Ministry of Education through the Education Development Centre should always generate items in accordance with the specifications of test blueprint.
2. Enugu State Ministry of Education through the Education Development Centre should adopt content validity before CRS BECE items are administered.
3. Conferences, workshops, seminars and other in-service programmes should be regularly organized for test constructors by the EDC.

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